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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			EXAMINER CLEARY, THOMAS J	
			ART UNIT 2111	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/736,854

Applicant(s)

FORD ET AL.

Examiner

Thomas J. Cleary

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-11 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-11 and 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5-6, 11, 15-17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent number 6,007,228 to Agarwal et al. ("Agarwal") and "About SP-DIF or S/PDIF" by DJ Greaves ("Greaves").

3. In reference to Claim 1, Agarwal discloses an information handling system including: a processor; memory coupled to the processor; glue logic coupled to the processor for facilitating connection of the processor to other devices (See Figure 4 Number 10' and Column 6 Lines 37-45); an audio coder and decoder coupled to the glue logic and including a digital audio output (See Figure 4 Numbers 40, 54 and 58); a first multi-pin docking connector in a portable portion (See Figure 4 Number 30); a second multi-pin docking connector (See Figure 4 Number 30) in a docking station (See Figure 4 Number 20') wherein each pin of the second multi-pin docking connector is coupled to only one pin of the first multi-pin docking connector (See Figure 4 Number

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30); and a digital audio receiver to convert digital audio to analog audio and including a digital audio input, wherein the digital audio receiver is located at the docking station and coupled to an audio pin of the second multi-pin docking connector (See Figure 4 Numbers 52 and 60). Agarwal does not explicitly disclose that the digital audio output is a Sony-Philips Digital Interface (S/PDIF) digital audio output; that only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder via the unidirectional S/PDIF digital audio output; that the digital audio input of the digital audio receiver is an unidirectional S/PDIF digital audio input; and that the digital audio receiver is coupled to the only one audio pin of the second multi-pin docking connector via the unidirectional S/PDIF digital audio input. Agarwal does disclose that any digital audio link can be used (See Column 8 Lines 26-50). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio link would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Agarwal with an S/PDIF digital audio output, resulting in the invention of Claim 1, because Agarwal supports the use of any digital audio link (See Column 8 Lines 26-50 of Agarwal) and because S/PDIF is a well known digital audio link (See Page 1 Paragraph 3 of Greaves) which can carry a pair of stereo channels with a sampling rate of up to 96 Ksps with a sampling precision of up to

24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

4. In reference to Claim 5, Agarwal and Greaves disclose the limitations as applied to Claim 1 above. Agarwal further discloses that the digital audio receiver includes an analog output (See Figure 4 and Column 7 Lines 41-44).

5. In reference to Claim 6, Agarwal and Greaves disclose the limitations as applied to Claim 5 above. Agarwal further discloses that a first power amplifier is coupled to the analog output (See Figure 4 Number 48 and Column 7 Lines 44-45).

6. In reference to Claim 11, Agarwal discloses a method of operating an information handling system including a portable portion (See Figure 4 Number 10') and a docking station (See Figure 4 Number 20'), the method comprising: generating, by the portable portion, a digital audio signal (See Figure 4 Number 58); sending the digital audio signal across a docking interface between the portable portion and a docking station (See Figure 4 Number 30), wherein the docking interface comprises a first multi-pin docking connector coupled to an audio coder and decoder (See Figure 4 Numbers 40, 54, and 58) and a second multi-pin docking connector, wherein each pin of the second multi-pin docking connector is coupled to only one pin of the first multi-pin docking connector (See Figure 4 Number 30), and wherein the second multi-pin docking connector is coupled to a digital audio receiver using a pin of the second multi-pin docking connector

(See Figure 4 Numbers 52 and 60); converting the digital audio signal to an analog audio signal (See Figure 4 Numbers 52 and 60); and amplifying the analog audio signal (See Figure 4 Number 48 and Column 7 Lines 44-45). Agarwal does not explicitly disclose that the digital audio output is a Sony-Philips Digital Interface (S/PDIF) digital audio output; that only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder via the S/PDIF digital audio output; and that the digital audio receiver is coupled to the only one audio pin of the second multi-pin docking connector via the S/PDIF digital audio input. Agarwal does disclose that any digital audio link can be used (See Column 8 Lines 26-50). Greaves discloses the use of S/PDIF, which is a digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio link would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Agarwal with an S/PDIF digital audio output, resulting in the invention of Claim 11, because Agarwal supports the use of any digital audio link (See Column 8 Lines 26-50 of Agarwal) and because S/PDIF is a well known digital audio link (See Page 1 Paragraph 3 of Greaves) which can carry a pair of stereo channels with a sampling rate of up to 96 Ksps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

7. In reference to Claim 15, Agarwal and Greaves disclose the limitations as applied to Claim 11 above. Agarwal further discloses performing a digital to analog conversion on the digital audio signal after it passes from the first connector to the second connector of the docking interface, thus converting the digital audio signal to an analog audio signal (See Figure 4 Number 52 and Column 7 Lines 41-44).

8. In reference to Claim 16, Agarwal and Greaves disclose the limitations as applied to Claim 15 above. Agarwal further discloses amplifying the analog audio signal by a first audio amplifier thus providing a first amplified analog audio signal (See Figure 4 Number 48 and Column 7 Lines 44-45).

9. In reference to Claim 17, Agarwal and Greaves disclose the limitations as applied to Claim 16 above. Agarwal further discloses providing the first amplified analog audio signal to a line out output of the docking station (See Column 7 Lines 44-45).

10. Claim 21 recites limitations which are substantially equivalent to those of Claim 11 and is rejected under the same reasoning.

11. Claims 7-10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal and Greaves as applied to Claims 6 above, and further in view of US Patent Number 6,359,994 to Markow et al. ("Markow").

12. In reference to Claims 7 and 8, Agarwal and Greaves disclose the limitations as applied to Claim 6 above. Agarwal and Greaves do not disclose a second power amplifier coupled to the second output, as in Claim 7, and a subwoofer coupled to the second power amplifier, as in Claim 8. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3 Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Agarwal and Greaves with the docking station subwoofer of Markow, resulting in the invention of Claims 7 and 8, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 – Column 3 Line 4 of Markow).

13. In reference to Claims 9 and 10, Agarwal, Greaves, and Markow disclose the limitations as applied to Claim 8 above. Markow further discloses that the docking station has a substantially closed volume having an aperture, as in Claim 9, and that the subwoofer is situated in the aperture to project sound therethrough, as in Claim 10 (See Figure 1B Numbers 100 and 107).

14. In reference to Claims 18 and 19, Agarwal and Greaves disclose the limitations as applied to Claim 17 above. Agarwal and Greaves do not disclose amplifying the analog audio signal by a second audio amplifier thus providing a second amplified analog audio signal, as in Claim 18, and providing the second amplified analog audio signal to a subwoofer loudspeaker, as in Claim 19. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3 Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Agarwal and Greaves with the docking station subwoofer of Markow, resulting in the invention of Claims 18 and 19, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 – Column 3 Line 4 of Markow).

15. In reference to Claims 20, Agarwal, Greaves, and Markow disclose the limitations as applied to Claim 19 above. Agarwal further discloses that the docking station exhibits a substantially closed volume (See Figure 1 Number 20). Markow also further discloses that the docking station exhibits a substantially closed volume (See Figure 1B Number 100).

Claim Objections

16. Claims 15 and 16 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Response to Arguments

17. Applicant's arguments with respect to Claims 1, 5-11, and 15-21 have been considered but are moot in view of the new ground(s) of rejection.

18. Applicant has argued that Agarwal discloses the use of a five wire audio link, and thus does not disclose that only one audio pin is coupled to the audio coder and decoder via the digital audio output (See Page 6 Paragraph 4 – Page 7 Paragraph 3). In response, the Examiner notes that, as shown in the above rejections, Agarwal discloses that that any digital audio link can be used (See Column 8 Lines 26-50). Greaves discloses the use of S/PDIF, which is a digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio link would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link.

19. In response to applicant's argument that there is no suggestion to combine the references (See Page 9 Paragraph 2), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Agarwal and Greaves with the docking station subwoofer of Markow in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 – Column 3 Line 4 of Markow). The Examiner further notes that, as shown in the above rejections, Markow was not relied upon to disclose the limitations identified by the Applicant (see Page 9 Paragraph 2).

20. Applicant has argued that the use of S/PDIF in the device of Agarwal would destroy its intended function, as the digital audio connections of Agarwal are bidirectional and S/PDIF is unidirectional (See Page 10 Paragraphs 2-3). In response, the Examiner notes that, while Agarwal does disclose a bidirectional connection, Agarwal does not disclose that each communication line of the bidirectional connection

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is a bidirectional communication line. It is notoriously old and well known in the art to use a pair of unidirectional signal lines in place of a single bidirectional signal line, as evidenced by US Patent Application Publication Number 2003/0093648 to Moyer (See Paragraph 22), US Patent Number 5,495,619 to May et al. (See Column 5 Line 58 – Column 6 Line 6), US Patent Number 4578789 to Middleton et al. (See Column 5 Lines 25-60), US Patent Number 4490782 to Dixon et al. (See Column 4 Line 61 – Column 5 Line 2), and US Patent Number 4006467 to Bowman (See Column 3 Lines 35-43). One of ordinary skill in the art would therefore recognize that a bidirectional communication line can comprise multiple unidirectional communication lines for transmitting data in opposite directions, such as, for example, a line for transmitting and a line for receiving. Therefore, contrary to Applicant's assertion, Agarwal could receive external audio, mix it, and send it back out using unidirectional connections. Thus, the use of S/PDIF in the system of Agarwal would not destroy the intended function of Agarwal. The Examiner further notes that the Claims only require that only one audio pin of the connector is connected to the audio coder and decoder via the unidirectional S/PDIF digital audio output, and do not prohibit the audio coder and decoder be connected to other pins of the connector via other digital audio outputs.

21. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Cleary whose telephone number is 571-272-3624. The examiner can normally be reached on Monday-Thursday (7-3), Alt. Fridays (7-2).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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